

WHAT IS CLAIMED IS:

1 ~~1. A method for processing incoming print jobs, comprising:~~
 2 determining job description attributes of an incoming print job;
 3 determining attributes of a print channel associated with the incoming print
 4 job; and
 5 processing the incoming print job based upon the attributes of the print
 6 channel and the job description attributes of the incoming print job.

1 2. The method of claim 1 wherein the processing further comprises:
 2 determining whether the job description attributes and the print channel
 3 attributes dictate an output path;
 4 analyzing a state for a dictated output path when the job description attributes
 5 and the print channel attributes dictate an output path; and
 6 routing the incoming print job to the dictated path when the state of the
 7 dictated path is free.

1 3. The method of claim 2 further comprising signaling a stop flow
 2 command to halt the incoming print job when the state of the dictated path is busy.

1 4. The method of claim 3 further comprising restarting the incoming print
 2 job when the dictated path becomes available.

1 ~~5. The method of claim 2 further comprising:~~

2 evaluating a setting for a user output selection when the job description
3 attributes and the print channel attributes do not dictate an output path; and
4 processing the incoming print job based upon the setting for the user output
5 selection.

1 6. The method of claim 5 further comprising:

2 printing the incoming print job when the incoming print job is not required to
3 be spooled because of the job description attributes or the print channel attributes
4 and the setting of the user output selection is PRINT ALL;

5 spooling the incoming print job when the incoming print job is not required to
6 be printed because of the job description attributes or the print channel attributes
7 and the setting of the user output selection is SPOOL ALL;

8 printing the incoming print job when the printer is available, the incoming print
9 job is not required to be printed because of the job description attributes or the print
10 channel attributes and the setting of the user output selection is SPOOL WHEN
11 BUSY; and

12 spooling the incoming print job when the printer is busy, the incoming print
13 job is not required to be printed because of the job description attributes or the print
14 channel attributes and the setting of the user output selection is SPOOL WHEN
15 BUSY.

1 7. The method of claim 1 wherein the print channel attributes comprise
2 MUST PRINT, MUST SPOOL and MAY SPOOL.

1 ~~8. The method of claim 7 wherein the print channel attribute is MUST~~
 2 PRINT for print channels that provide bi-directional communication with a host.

1 9. The method of claim 8 wherein the print channel attribute is MUST
 2 PRINT for a IPDS port, Coax, Twinax, AppleTalk, Despooler and Internal Print type
 3 print control modules.

1 10. The method of claim 8 wherein the print channel attribute is MAY
 2 SPOOL for Web Pull, Web Push, IPP, FTP, direct print ports, LPD, NetBIOS,
 3 NetWare, and Parallel type print control modules.

1 11. The method of claim 8 wherein the determining job description
 2 attributes of an incoming print job further comprises sniffing a data stream for the
 3 incoming print job.

1 12. The method of claim 1 wherein the job description attributes comprise
 2 MUST PRINT, MUST SPOOL and MAY SPOOL.

1 13. The method of claim 12 wherein a PDF file comprises a MUST SPOOL
 2 job description attribute.

1 14. The method of claim 13 wherein the PDF file is spooled to allow the
 2 PDF file to be converted to PostScript before printing.

1 15. The method of claim 12 wherein an IPDS file comprises a MUST
 2 PRINT job description attribute.

1 16. A multiplexer for processing incoming print jobs, comprising:
2 a multiplexer interface for determining attributes of a print channel associated
3 with an incoming print job and receiving job description attributes of the incoming
4 print job from the print channel; and
5 a multiplexer processor component, interfaced with the multiplexer interface,
6 for managing the routing of the incoming print job based upon the attributes of the
7 print channel and the job description attributes of the incoming print job.

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1 17. The multiplexer of claim 16 wherein the multiplexer processor
2 component determines whether the job description attributes and the print channel
3 attributes dictate an output path, analyzes a state for a dictated output path when
4 the job description attributes and the print channel attributes dictate an output path
5 and routes the incoming print job to the dictated path when the state of the dictated
6 path is free.

1 18. The multiplexer of claim 17 wherein the multiplexer processor
2 component signals a stop flow command to halt the incoming print job when the
3 state of the dictated path is busy.

1 19. The multiplexer of claim 18 wherein the multiplexer processor
2 component restarts the incoming print job when the dictated path becomes
3 available.

1 ~~20. The multiplexer of claim 17 further comprises a multiplexer output~~
2 selector for receiving a user selection input to control spooling of jobs that are not
3 required to be sent to a spooler or a print engine, wherein the multiplexer processor
4 component evaluates a setting for a user output selection when the job description
5 attributes and the print channel attributes do not dictate an output path and routes
6 the incoming print job based upon the setting for the user output selection.

1 21. The multiplexer of claim 20 wherein the multiplexer processor
2 component prints the incoming print job when the incoming print job is not required
3 to be spooled because of the job description attributes or the print channel attributes
4 and the setting of the user output selection is PRINT ALL, spools the incoming print
5 job when the incoming print job is not required to be printed because of the job
6 description attributes or the print channel attributes and the setting of the user
7 output selection is SPOOL ALL, prints the incoming print job when the printer is
8 available, the incoming print job is not required to be printed because of the job
9 description attributes or the print channel attributes and the setting of the user
10 output selection is SPOOL WHEN BUSY and spools the incoming print job when the
11 printer is busy, the incoming print job is not required to be printed because of the job
12 description attributes or the print channel attributes and the setting of the user
13 output selection is SPOOL WHEN BUSY.

1 22. The multiplexer of claim 16 wherein the print channel attributes
2 comprise MUST PRINT, MUST SPOOL and MAY SPOOL.

1 23. The multiplexer of claim 22 wherein the print channel attribute is ~~MUST~~
2 PRINT for print channels that provide bi-directional communication with a host.

1 24. The multiplexer of claim 23 wherein the print channel attribute is MUST
2 PRINT for a IPDS port, Coax, Twinax, AppleTalk, Despooler and Internal Print type
3 print control modules.

1 25. The multiplexer of claim 23 wherein the print channel attribute is MAY
2 SPOOL for Web Pull, Web Push, IPP, FTP, direct print ports, LPD, NetBIOS,
3 NetWare, Coas, Twinax and Parallel type print control modules.

1 26. The multiplexer of claim 23 wherein the print channel sniffs a data
2 stream for the incoming print job to determine the job description attributes of the
3 incoming print job.

1 27. The multiplexer of claim 16 wherein the job description attributes
2 comprise MUST PRINT, MUST SPOOL and MAY SPOOL.

1 28. The multiplexer of claim 27 wherein a PDF file comprises a MUST
2 SPOOL job description attribute.

1 29. The multiplexer of claim 28 wherein the multiplexer processor
2 component spools the PDF file to allow the PDF file to be converted to PostScript
3 before printing.

1 ~~30. The multiplexer of claim 27 wherein an IPDS file comprises a MUST~~
2 PRINT job description attribute.

1 31. A print system, comprising:
2 a print engine for receiving a data stream for an incoming print job and
3 generates print media based upon the data stream;
4 a spooler storing incoming print jobs until sent to the print engine; and
5 a system controller, coupled to the print engine and the spooler, for
6 controlling the print engine, the spooler and the processing of incoming print jobs,
7 the system controller including a multiplexer for managing the incoming print jobs,
8 the multiplexer further comprising:
9 a multiplexer interface for determining attributes of a print channel
10 associated with an incoming print job and receiving job description attributes of the
11 incoming print job from the print channel; and
12 a multiplexer processor component, interfaced with the multiplexer
13 interface, for managing the routing of the incoming print job based upon the
14 attributes of the print channel and the job description attributes of the incoming print
15 job.

1 ~~32. The print system of claim 31 wherein the multiplexer processor~~
2 ~~component determines whether the job description attributes and the print channel~~
3 ~~attributes dictate an output path, analyzes a state for a dictated output path when~~
4 ~~the job description attributes and the print channel attributes dictate an output path~~
5 ~~and routes the incoming print job to the dictated path when the state of the dictated~~
6 ~~path is free.~~

1 33. The print system of claim 32 wherein the multiplexer processor
2 component signals a stop flow command to halt the incoming print job when the
3 state of the dictated path is busy.

1 34. The print system of claim 33 wherein the multiplexer processor
2 component restarts the incoming print job when the dictated path becomes
3 available.

1 35. The print system of claim 32 further comprises a multiplexer output
2 selector for receiving a user selection input to control spooling of jobs that are not
3 required to be sent to a spooler or a print engine, wherein the multiplexer processor
4 component evaluates a setting for a user output selection when the job description
5 attributes and the print channel attributes do not dictate an output path and routes
6 the incoming print job based upon the setting for the user output selection.

1 ~~36. The print system of claim 35 wherein the multiplexer processor~~
 2 component prints the incoming print job when the incoming print job is not required
 3 to be spooled because of the job description attributes or the print channel attributes
 4 and the setting of the user output selection is PRINT ALL, spools the incoming print
 5 job when the incoming print job is not required to be printed because of the job
 6 description attributes or the print channel attributes and the setting of the user
 7 output selection is SPOOL ALL, prints the incoming print job when the printer is
 8 available, the incoming print job is not required to be printed because of the job
 9 description attributes or the print channel attributes and the setting of the user
 10 output selection is SPOOL WHEN BUSY and spools the incoming print job when the
 11 printer is busy, the incoming print job is not required to be printed because of the job
 12 description attributes or the print channel attributes and the setting of the user
 13 output selection is SPOOL WHEN BUSY.

1 37. The print system of claim 31 wherein the print channel attributes
 2 comprise MUST PRINT, MUST SPOOL and MAY SPOOL.

1 38. The print system of claim 37 wherein the print channel attribute is
 2 MUST PRINT for print channels that provide bi-directional communication with a
 3 host.

1 39. The print system of claim 38 wherein the print channel attribute is
 2 MUST PRINT for a IPDS port, Coax, Twinax, AppleTalk, Despooler and Internal
 3 Print type print control modules.

1 ~~40. The print system of claim 38 wherein the print channel attribute is MAY~~
2 SPOOL for Web Pull, Web Push, IPP, FTP, direct print ports, LPD, NetBIOS,
3 NetWare, Coas, Twinax and Parallel type print control modules.

1 41. The print system of claim 38 wherein the print channel sniffs a data
2 stream for the incoming print job to determine the job description attributes of the
3 incoming print job.

1 42. The print system of claim 31 wherein the job description attributes
2 comprise MUST PRINT, MUST SPOOL and MAY SPOOL.

1 43. The print system of claim 42 wherein a PDF file comprises a MUST
2 SPOOL job description attribute.

1 44. The print system of claim 43 wherein the multiplexer processor
2 component spools the PDF file to allow the PDF file to be converted to PostScript
3 before printing.

1 45. The print system of claim 42 wherein an IPDS file comprises a MUST
2 PRINT job description attribute.

1 46. ~~An article of manufacture comprising a program storage medium~~
2 readable by a computer, the medium tangibly embodying one or more programs of
3 instructions executable by the computer to perform a method for processing
4 incoming print jobs, the method comprising:

5 determining job description attributes of an incoming print job;
6 determining attributes of a print channel associated with the incoming print
7 job; and
8 processing the incoming print job based upon the attributes of the print
9 channel and the job description attributes of the incoming print job.

1 47. The article of manufacture of claim 46 wherein the processing further
2 comprises:

3 determining whether the job description attributes and the print channel
4 attributes dictate an output path;
5 analyzing a state for a dictated output path when the job description attributes
6 and the print channel attributes dictate an output path; and
7 routing the incoming print job to the dictated path when the state of the
8 dictated path is free.

1 48. The article of manufacture of claim 47 further comprising signaling a
2 stop flow command to halt the incoming print job when the state of the dictated path
3 is busy.

1 49. The article of manufacture of claim 47 further comprising:
2 evaluating a setting for a user output selection when the job description
3 attributes and the print channel attributes do not dictate an output path; and
4 processing the incoming print job based upon the setting for the user output
5 selection.

1 50. The article of manufacture of claim 49 further comprising:
2 printing the incoming print job when the incoming print job is not required to
3 be spooled because of the job description attributes or the print channel attributes
4 and the setting of the user output selection is PRINT ALL;
5 spooling the incoming print job when the incoming print job is not required to
6 be printed because of the job description attributes or the print channel attributes
7 and the setting of the user output selection is SPOOL ALL;
8 printing the incoming print job when the printer is available, the incoming print
9 job is not required to be printed because of the job description attributes or the print
10 channel attributes and the setting of the user output selection is SPOOL WHEN
11 BUSY; and
12 spooling the incoming print job when the printer is busy, the incoming print
13 job is not required to be printed because of the job description attributes or the print
14 channel attributes and the setting of the user output selection is SPOOL WHEN
15 BUSY